

### REMARKS

The claims have been amended in order to more completely describe and distinctly claim the invention and to overcome the various grounds of rejection set forth in the Official Letter. Inasmuch as no new matter is embodied by the proposed amendments, entry thereof is respectfully requested.

The Examiner's objections to the drawings are obviated by the new drawings submitted herewith.

The Examiner's objections to the claims set forth in paragraph 4 are believed to be overcome by the above amendments whereby. Accordingly, withdrawal of these grounds of objection is respectfully requested

The rejection of the claims under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention, is believed to be obviated by the above amendment. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of the claims under 35 USC 102 over Wilson as being completely anticipated is respectfully traversed insofar as this ground of rejection is directed to the claims as presently amended. The Examiner states, in connection with this ground of rejection:

*“---In regards to claim 1, Wilson discloses a material identification method comprising obtaining a multi-order spectrum from a sample (page 2, ¶s 33-35), comparing the multi-order spectrum to multi-order spectra for known compositions, and outputting an identification of the sample based on a correlation between the sample and the known composition (page 7, 129; while it is not explicitly disclosed that the identification is outputted, since the CTIS system is used for identifying a composition, it would be inherent to output this information in some way, for example via a display, a printout, or saved into a memory of a computer)---”* (emphasis added).

Applicant has carefully reviewed the entire Wilson reference, in particular, the cited ¶s 33-35 and ¶ 129 and find no reference whatsoever to “samples”, “compositions”, or “materials”, much less any “identification” thereof. Indeed, the Examiner admits at page 4 of the Official Letter that Wilson is not concerned with the identification of unknown materials:

Wilson does not disclose detail about how the identification of the sample is undertaken---” (emphasis added).

Wilson relates to a method and system for “---performing spectral imaging of scenes containing rapidly moving objects or evolving features, hereafter referred to as transient scenes” (see Abstract). Cited ¶s 33-35 of Wilson state:

*“---[0033] A type of spectrometer known in the field of optics as a “computed tomography imaging spectrometer”, or CTIS hereinafter, enables transient-event spectral imaging by capturing spatial and spectral information in a single snapshot. This has been accomplished by imaging a scene through a two-dimensional (2D) grating disperser as illustrated in the prior-art transmissive system 30 of FIG. 1.*

*[0034] Referring to FIGS. 1-3, in this invention a primary optical system forms a real image 40 of the scene on a rectangular aperture 31 that serves as a field stop 41. Since primary optical systems are well known in the art, for example telescopes, microscopes, endoscopes, etc., such systems are not shown in the drawings.*

*[0035] For example, in FIG. 2, spots of visible light, namely a blue spot B, a red spot R and a white spot W, in the field stop 41 are collimated in a lens 32, filtered through a wide-band filter means 33, and passed through a 2D grating disperser 34 which produces a 2D array of diffraction orders 35. A final focusing element, such as lens 36, re-images the various diffraction orders of light 37 onto a focal plane array (FPA) detector 38, e.g. a charge coupled device, that records the intensity but not the color of the incident light. Each diffraction order transmitted from grating disperser 34 produces a spectrally dispersed image 44 of the scene, except for the undiffracted “zeroth” order which produces an undispersed image in the dashed center area 45 of FPA detector 38 as illustrated in FIG. 3---” (emphasis added)*

Cited ¶ 129 of Wilson states:

*“---The reflective CTIS of this invention is used to perform spectral imaging of rocket plumes. Our reflective CTIS records an entire movie of frames and then tomographically reconstructs the scene using our*

*undiffracted image constraint process with CTIS. The resulting spatial-spectral movie enables comparison of measured spectra to predicted spectra. Such spectra are useful for identifying rockets from a long range for missile defense, and/or for studying burn chemistry---*

Obviously, Wilson has nothing whatsoever to do with the identification of unknown materials; indeed, how could the reference do so, since it is concerned with the recordation of “movies” of “transient events” in order to analyze some aspect thereof. Since the system and method of the reference could not possibly “identify an unknown material”, it cannot be said to anticipate the claimed invention within the meaning of 35 USC 102. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of claims 2, 6-8, 10-12, 16-18 and 20-21 over 35 USC 103 as obviously unpatentable over Wilson in view of Day. Notwithstanding the disclosure of Day, which, according to the Examiner, discloses such techniques as “using libraries to compare reference spectra to a measured spectrum, the secondary reference does not cure the deficiencies of the primary reference pointed out, namely that Wilson has nothing to do with the identification of unknown materials. The references are therefore non-combinable to reject the present claims.

Similarly, with respect to the rejection of the claims under 35 USC 103 over Wilson over Gornushkin, the latter does not remedy the fatal flaw inherent in Wilson, namely, that the reference is concerned solely with the analysis of “transient scenes” and not with identifying unknown substances. Accordingly, these references are also non-combinable.

The Examiner’s rejection is flawed on several grounds. First, the prior art references are from totally different and distinct art areas. There is nothing therein to suggest their being combined in the manner used by the Examiner to reject the claims. Secondly, the references do not recognize the problem sought to be solved by the invention. Thus, how could they be alleged to suggest a solution that problem.

The Examiner's reasoning fails to take into account, however, that is based upon a hindsight reconstruction of the invention utilizing the applicants' disclosure as a template for selecting isolated disclosures from two separate references containing disparate and unrelated teachings and combining them to arrive at the claimed invention in the absence of any suggestion in the references themselves that they can be so combined.

A legal conclusion of patent invalidity for obviousness must be supported by findings on the four factual inquiries set forth in *Graham v. John Deere Co.*, [383 U.S. 1, 148 USPQ 459 (1966)]. The legal conclusion of invalidity for obviousness depends on four factual inquiries identified by *Graham v. John Deere Co.* as concerning (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of nonobviousness.

In the present case the Examiner must conduct a *Graham* analysis. The necessity of *Graham* is especially important where, as in this case, the invention is less technologically complex. In such a case, the danger increases that "the very ease with which the invention can be understood may prompt one to 'fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher,'" In re Dembiczak, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999).

In order to justify a combination of references, it is necessary not only that it be physically possible to combine them, but also that the art should contain something to suggest the desirability of doing so. *Ex parte Walker*, 135 USPQ 195; *Ex parte Fleischmann*, 157 USPQ 155. The prior art cannot be combined as if appellant's invention was included therein as a part of the knowledge possessed by one of ordinary skill in the art. In combining references, the prior art references themselves must suggest their being combined so as to render the claimed invention obvious to one skilled in the art; and resort

must not be had to applicant's own disclosure and the utilization of hindsight for the guiding hand that dictates the combination of references.

It is further well settled that the prior art itself must suggest the problem sought to be solved by the claimed invention before it can be said to suggest or disclose its solution. In re Shaffer, 108 USPQ 326; In re Aufhauser, 158 USPQ 351; US v. Adams 148 USPQ 479; In re Nomiya, 184 USPQ 607.

Any analysis of obviousness must necessarily begin in the text of section 103, with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," [see *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861,873; 228 USPQ 90,98 (Fed. Cir. 1985), overruled on other grounds by *Nobel-pharma AB v. Implant Innovations, Inc.*, 141 F. 3d1059, 46USPQ2d 1097 (Fed. Cir, 1998)], when analyzing the patentability of claims pursuant to that section.

Measuring a claimed invention against the standard established by section 103 requires the often difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See, e.g., *W.L Gore & Assoc., Inc. y. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 UPSQ 303, 313 (Fed. Cir 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *Id.*

The present state of the patent law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F. 3d 1340, 1352, 48 USPQ2d

1225, 1232 (Fed. Cir. 1998,) (describing “teaching or suggestion or motivation [to combine]” as an “essential evidentiary component of an obviousness holding”) *In re Rouffet*, 149 F.3d 1350, 1359; 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“the Board must identify specifically---the reasons one of ordinary skill in the art would have been ‘motivated to select the references and combine them’”); *In re Fritch* 972 F.2d 1260, 1265; 23 USPQ2d 1780, 1783 (Fed cir. 1992) (examiner can satisfy burden of obviousness in light of combination “only by showing some objective teaching [leading to the combination]”); *In re Fine*, 837 F.2d 1071, 1075; 5 USPQ2d 1596, 1600 (Fed Cir. 1988) (evidence of teaching or suggestion “essential” to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed Cir. 1985) (district court’s conclusion of obviousness was error when it “did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination”). See also *Graham* 383 U.S. at 18, 148 USPQ at 467 (“strict observance” of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability-the essence of hindsight. See, e.g., *Inteconnect Planning Corp. v. Feil*, 774 F.2d 1132 1138, 227 USPQ 543, 547 (Fed. Cir. 1985) (“The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.”). In this case, the Board (Examiner) has obviously fallen into the hindsight trap.

We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, see *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573; 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), *Para-Ordinance Mfg. v. SGS Imports Intern., Inc.*, 73 F.3d 1085, 1088; 37 USPQ2d

1237, 1240 (Fed. Cir. 1995), although “the suggestion more often comes from the teachings of the pertinent references,” *Rouffet*, 149 F.3d at 1355, 47 USPQ2d at 1456. The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. See, e.g., *C. R. Bard*, 157 F.3d at 1352; 48 USPQ2d at 1232. Broad conclusory statements regarding the teachings of multiple references, standing alone, are not “evidence.” E.g., *McElmurry V. Arkansas Power & Light Co.*, 995 F.2d 1576, 1578; 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) (“Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact.”); *In re Sichert*, 566 F.2d 1154, 1164, 196 USPQ ~209, 217 (CCPA 1977).

In a recent (nonprecedential) decision the USPTO Board of Appeals and Patent Interferences *Ex parte Metcalf* [67 USPQ2d 1633, (2003)] recently considered the following situation: The examiner proposed to combine teachings of Paroutaud with those of Murry “because in a reproduction of music, each microphones [sic] *could* detect the sound of each instrument in the musical instrument and record each instrument onto a separate channel. Also, volume of each signal *could* be controlled and amplified separately to drive each instrument transducers [sic].” The Board held that Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination, citing *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 140, 231 USPQ 644, 647 (Fed. Cir. 1986) (citing *ACS Hosp. Syss., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984) and that the factual inquiry whether to combine references must be thorough and searching, citing *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). The Board went on to state that this factual question cannot be resolved on subjective belief and unknown authority, citing *In re Lee*, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002); that it must be based on

objective evidence of record, citing *Id.* at 1343, 61 USPQ2d at 1434. The Board further noted that the U.S. Court of Appeals for the Federal Circuit has stated that “[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). The Board noted that, although this statement is couched in terms of modifying the prior art, “we hold that a similar one applies to combining teachings found in the prior art. Specifically, the mere fact that teachings found in the prior art could be combined as proposed by an examiner does not make the combination obvious ‘absent some teaching, suggestion or incentive supporting the combination, citing *Carella*, 804 F.2d at 140, 231 USPQ at 647 (citing *ACS Hosp. Sys., Inc.*, 732 F.2d at 1577, 221 USPQ at 933). In the instant appeal, the examiner fails to identify any such teaching, suggestion, or incentive to support his proposed combination. Therefore, we reverse the rejection of claims 1, 2, 4-10, 12-15, 17-19, and 21-55 as obvious over the combination of Murry and Paroutaud”.

It is clear that the authorities are unanimous in holding that it is impermissible to use the claimed invention as an instruction manual or “template” to piece together isolated disclosures and teachings of the prior art so that the claimed invention may be rendered obvious. A rejection based on § 103 must rest on a factual basis, with the facts being interpreted without hindsight reconstruction of the invention from the prior art. In making this evaluation, the examiner has the initial duty of supplying the factual basis for the rejection he advances. He may not, because he doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). Since there is no factual basis in the prior art relied on



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which supports the proposed combination thereof, and it is apparent that the examiner's conclusion of obviousness is based on hindsight reconstruction of the claimed invention from isolated disparate teachings in prior art which is not concerned with the problem sought to be solved by the claimed invention, this ground of rejection is not sustainable.

Accordingly, withdrawal of this ground of rejection is respectfully requested.

The prior art cited by the Examiner but not relied upon has been carefully reviewed. These references will not be discussed in detail. Suffice it to state that none of the references, either alone or in combination, disclose or suggest the claimed invention. Applicants have earnestly endeavored to place this application in condition for allowance and an early action to that end is respectfully requested.

Respectfully submitted,

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